

CLAIMS:

1. The instant invention is directed at a process for producing base oils. The process comprises:

- a) contacting a hydrocarbonaceous feedstock with a hydrocracking catalyst under effective hydrocracking conditions to produce a hydrocracked product;
- b) fractionating the hydrocracked product to produce at least a first bottoms fraction;
- c) contacting said first bottoms fraction with an extraction solvent to produce at least an aromatics-rich extract solution and an aromatics-lean raffinate solution;
- d) removing at least a portion of said extraction solvent from said aromatics-lean raffinate solution to produce at least an aromatics-lean raffinate;
- e) dewaxing said aromatics-lean raffinate to produce a dewaxed product;
- f) fractionating said dewaxed product to produce at least a second bottoms fraction; and
- g) hydrofinishing said second bottoms fraction to produce at least one base oil.

2. The process according to claim 1 wherein said hydrocarbonaceous feedstock boil in the lubricating oil range.

3. The process according to claim 2 wherein said hydrocarbonaceous feedstock has a 10% distillation point greater than 650°F (343°C), a wax content of the of at least about 50 wt.%, based on the hydrocarbonaceous feedstock, but can range up to 100 wt.% wax, and a viscosity index of up to 200 or more.

4. The process according to claim 3 wherein said hydrocarbonaceous feedstock is selected from raffinates, partially solvent dewaxed oils, deasphalted oils, distillates, vacuum gas oils, coker gas oils, slack waxes, foots oils and the like, and Fischer-Tropsch waxes.
5. The process according to claim 4 wherein said hydrocarbonaceous feedstock is selected from slack waxes and Fischer-Tropsch waxes.
6. The process according to claim 3 wherein said hydrocracking catalyst contains at least one hydrogenation metal from Group VIB metals, Group VIII metals, their oxides, or mixtures thereof on a refractory support selected from silica-alumina, silica-magnesia, silica-zirconia, alumina-boria, silica-titania, silica-zirconia-titania, acid-treated clays, acidic metal phosphates and the like.
7. The process according to claim 6 wherein said at least one hydrogenation metal is selected from platinum, palladium, rhodium or iridium.
8. The process according to claim 6 wherein said refractory support is selected from partially dehydrated zeolitic crystalline molecular sieves of the X or Y crystal type, having relatively uniform pore diameters of about 8-14 Angstroms and comprising silica, alumina, and one or more exchangeable zeolitic cations alone or in intimate mixture with other amorphous bases containing from about 20 to about 100 weight percent zeolite.
9. The process according to claim 6 wherein said effective hydrocracking conditions include temperatures in the range about 400°F to about 800°F, total pressures between about 100 to about 1000 psig, hydrogen partial pressures between about 50 to about 450 psig, and gas hourly space velocities (GHSV's) between about 200 to about 2000.

10. The process according to claim 9 wherein said hydrocracked product is fractionated in a vacuum or atmospheric distillation tower.
11. The process according to claim 10 wherein said hydrocracked product is fractionated in a vacuum distillation tower.
12. The process according to claim 11 wherein said first bottoms fraction has a mid-boiling point range (50% LV), as determined by ASTM D6417, of about 350°C to about 450°C and has a viscosity ranging from about 200 SUS at 100°F to about 300 SUS at 100°F.
13. The process according to claim 12 wherein said first bottoms fraction is contacted under any suitable solvent extraction method with an extraction solvent selected from any extraction solvent known that has an affinity for aromatic hydrocarbons in preference to non-aromatic hydrocarbons.
14. The process according to claim 13 wherein said extraction solvent is selected from sulfolane, furfural, phenol, and N-methyl pyrrolidone ("NMP").
15. The process according to claim 14 wherein said extraction solvent is selected from furfural, phenol, and NMP.
16. The process according to claim 14 wherein said suitable solvent extraction method is a continuous process.
17. The process according to claim 15 wherein said continuous process is operated in a counter-current fashion.

18. The process according to claim 16 wherein the removal at least a portion of the extraction solvent is removed from the aromatics-rich raffinate solution through the use of any means known in the art effective at separating at least a portion of an extraction solvent from an aromatics-lean raffinate solution.

19. The process according to claim 18 wherein the removal of at least a portion of the extraction solvent from the aromatics-rich raffinate solution is accomplished through the use of a vacuum distillation tower.

20. The process according to claim 19 wherein said aromatics-lean raffinate is dewaxed by using a dewaxing method selected from catalytic and solvent dewaxing.

21. The process according to claim 20 wherein said dewaxing method is solvent dewaxing, wherein a solvent selected from methyl ethyl ketone ("MEK") and methyl isobutyl ketone ("MIBK") is used.

22. The process according to claim 20 wherein said dewaxed product is fractionated in a vacuum or atmospheric distillation tower.

23. The process according to claim 22 wherein said hydrocracked product is fractionated in a vacuum distillation tower.

24. The process according to claim 22 wherein said second bottoms has a mid-boiling point range (50%LV) greater than 450°C to about 550°C, more preferably from about 460°C to about 525°C, and has a viscosity ranging from about 200 SUS at 100°F to about 300 SUS at 100°F.

25. The process according to claim 24 wherein said second bottoms fraction is hydrofinished with a catalyst selected from any conventional hydrotreating catalyst under effective hydrofinishing conditions including temperatures from about 150°C to about 350°C, total pressures are typically from about 2859 to about 20786 kPa (about 400 to 3000 psig), liquid hourly space velocities ranging from about 0.1 to about 5 LHSV (hr^{-1}), and hydrogen treat gas rates ranging from about 44.5 to about 1780 m^3/m^3 (250 to 10000 scf/B).